An 8th grade student is participating in the C-Span Student Cam Contest, an annual national video documentary competition that encourages students to develop a 5-7 minute video documentary. This year's theme is "Your Message to Washington: What is the most urgent issue for the new president and Congress to address in 2017?" The student has asked for someone in the Climate Change Division to address the following questions. A draft statement is below the questions.

1. Focus: Exploring an unbiased view on the effects caused by responses to the possibility of human-influenced climate change.
2. Please state your name and title for the record.
3. What is your personal stance on climate change?
    a. How big of an issue actually is climate change, according to evidence?
    b. Do you think climate change is affecting us already?
    c. What's the best case scenario if we don't take action against climate change?
        i. What it the best case if we do?
        ii. What's the worst, in both respects?
4. Why do many people believe in human contribution to climate change?
    a. Why might they not?
5. What is your job, specifically?
6. How did you get into working at the EPA and why?
7. What steps are the EPA taking to combat climate change?
8. What can the average US citizen do to combat this issue?
9. What would be some advantages and disadvantages of the steps already taken?
10. Would these steps have any advantages unrelated to the fight against climate change as a whole?
11. Any final comments related to the focus of our documentary?

Climate change is an issue of national and global importance. As EPA Administrator Gina McCarthy has said, "Climate change is as big an environmental challenge as we have ever faced. It supercharges risks not only to our health, but to our economy and our way of life. From

stronger storms and longer droughts to increased allergy seasons, insurance premiums, and food prices, climate impacts affect all Americans' lives."

The evidence unequivocally shows that our Earth is warming. Records dating back to the 1800s show that Earth's average temperature has risen by over 1.5 degrees F over the past century. Every year since 1977 has had an average global temperature warmer than the 20th century average. In fact, 15 of the 16 warmest years on record have occurred since the beginning of the 21st century. These seemingly small changes in the average temperature of the planet translate to large and dangerous shifts in climate and weather.

We are already seeing shifting snow and rainfall patterns, and more extreme weather events, like heat waves and heavy rainstorms. The planet's oceans and glaciers have also experienced changes: oceans are warming and becoming more acidic, ice caps are melting, and sea levels are rising. The sum of these and other indicators are evidence of a warmer world and a changing climate. To see the evidence of climate change to date, visit: www.epa.gov/climate-indicators.

Climate change affects our environment and natural resources, and impacts our way of life in many ways. Here are a few:

- Human health: Heat waves, severe storms, air pollution, and diseases linked to climate already threaten people's health in many areas of the world. Global climate change will increase these threats. Some people will be particularly at risk, especially those who are poor, very young or elderly, or disabled, or those who live in coastal areas or big cities.
- Agriculture: The crops that we grow for food need specific conditions to thrive, including the right temperature and enough water. Climate change could make it too hot to grow certain crops, and droughts caused by climate change could reduce the amount of water available for irrigation. Climate change is also likely to cause stronger storms and more floods, which can damage crops.
- Water supplies: Climate change is affecting where, when, and how much water is available for people to use. Many parts of the world already have very little water, and climate change could make this problem worse. Rising temperatures, changing precipitation patterns, and increasing droughts will affect the amount of water in lakes, rivers, and streams, as well as the

amount of water that seeps into the ground to replenish ground water.

- Coastal areas: Global climate change threatens coastlines and the buildings and cities located along them. Hundreds of millions of people around the world live in low–lying areas near the coast that could be flooded as the sea level rises. Rising sea level will also erode beaches and damage many coastal wetlands. Rising sea level and stronger storms caused by warmer oceans could completely wipe out certain beaches and islands.
- Plants, animals and ecosystems: Most plants and animals live in areas with very specific climate conditions, such as temperature and rainfall patterns, that enable them to thrive. Any change in the climate of an area can affect the plants and animals living there, as well as the makeup of the entire ecosystem. Some species are already responding to a warmer climate by moving to cooler locations. For example, some North American animals and plants are moving farther north or to higher elevations to find suitable places to live. Climate change also alters the life cycles of plants and animals. For example, as temperatures get warmer, many plants are starting to grow and bloom earlier in the spring and survive longer into the fall. Some animals are waking from hibernation sooner or migrating at different times, too. Rapid changes to ecosystems may cause the displacement or loss of many species.

The impacts that we can expect in the future will depend on the steps that we take now to reduce greenhouse gas emissions and prepare for the changes that are already underway.

The global warming of the past 50 years is primarily due to human activities. Natural drivers of climate cannot explain the recent observed warming. Over the last five decades, natural factors (solar forcing and volcanoes) alone would actually have led to a slight cooling. The majority of the warming at the global scale over the past 50 years can only be explained by the effects of human influences, especially the emissions from burning fossil fuels (coal, oil, and natural gas) and from deforestation. The emissions from human influences that are affecting climate include heat-trapping gases such as carbon dioxide (CO2), methane, and nitrous oxide, and particles such as black carbon (soot), which has a warming influence, and sulfates, which have an overall cooling influence.

Many greenhouse gases stay in the atmosphere for long periods of time. As a result, even if emissions stopped increasing, atmospheric greenhouse gas concentrations would continue to increase and remain elevated for hundreds of years. Moreover, if we stabilized concentrations and the composition of today's atmosphere remained steady (which would require a dramatic reduction in current greenhouse gas emissions), surface air temperatures would continue to warm. This is because the oceans, which store heat, take many decades to fully respond to higher greenhouse gas concentrations. The ocean's response to higher greenhouse gas concentrations and higher temperatures will continue to impact climate over the next several decades to hundreds of years.

However, it is not too late to have a significant impact on future climate change and its effects on us. With appropriate actions by governments, communities, individuals, and businesses, we can reduce the amount of greenhouse gas pollution we release and lower the risk of much greater warming and severe consequences. Many of the actions that we can take to address climate change will have other benefits, such as cleaner, healthier air. In addition, communities can take action to prepare for the changes we know are coming.

To learn more about what EPA is doing to address climate change, see: https://www.epa.gov/climatechange/what-epa-doing-about-climate-change

To learn about the benefits to the United States of global action on climate change, see the EPA report: Climate Change in the United States: Benefits of Global Action at: https://www.epa.gov/cira

To learn about the scientific consensus on climate change, see the EPA page Climate Change Facts: Answers to Common Questions at: https://www.epa.gov/climatechange/climate-change-facts-answers-common-questions

There are a number of steps individuals can take at home, school, the office, and on the road to protect the climate, reduce greenhouse gas pollution, and save money. You can learn about these here: https://www.epa.gov/climatechange/what-you-can-do-about-climate-change

Small steps add up if we all do our part!

Administrator McCarthy has also noted, "This [climate change] isn't just about glaciers and polar bears. It's about the health of our family and our kids. To protect ourselves and future generations, we need to understand the health impacts of climate change that are already happening, and those that we expect to see down the road." You can read more about these impacts in the Administrator's blog, The Deepening Story of How Climate Change Threatens Human Health, and in the U.S. Global Change Research Program's report, The Impacts of Climate Change on Human Health in the United States.

Administrator McCarthy has also noted, "A strong, competitive American economy depends on climate action." You can read more about the benefits to Americans from global action on climate change, in the Administrator's blog, The Economic Case for Fighting Climate Change, and in the EPA report, Climate Change in the United States: Benefits of Global Action.